A Review of Career Development Research

in Australia and New Zealand from 1995-2000

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Abstract

This paper provides a review of the career development research studies that have published in Australia and New Zealand between 1995 and 2000. The review has grouped the literature according to the categories of career development theory, career development constructs, career-related decision-making, gender, cultural comparisons, career programs for children and training programs for adults. These groupings were created to correspond with the main focus of each study.

In Australia and New Zealand, career development has become a burgeoning field of study that has attracted research attention from a wide range of perspectives. This review of the literature reported between 1995 and the turn of the century aims to encapsulate the accrued evidence from this part of the world. It is intended to inform theorists and practitioners working here and to provide future direction for research endeavours. Moreover, it is anticipated that the present review will serve to inform experts in the field of career development research world-wide, particularly for those interested in the continuance of cross cultural comparisons.

Specific criteria were laid down to demarcate the boundaries for this review. Initially, all articles concerning career development in Australia and New Zealand published between 1995 and 2000 were taken into consideration. Following this, a strict definition of empirical research was applied in that "the evaluation or assessment of a hypothesis or theory by appeal to data, facts and experimentation" (Reber, 1995, p. 249) was required. Accordingly, studies accepted for the review had to demonstrate sound methodology and clearly describe the systematic collection of data and testing of hypotheses. Policy documents, case studies and descriptive studies were not included. In addition, papers were omitted if deemed to contribute little to the knowledge base or if they appeared to possess limited potential for theory building.

The search process involved the main data bases (e.g., Psychlit, ERIC) using key terms of career development, career maturity, career decision-making, careers, career interventions, career guidance, vocational guidance, vocational interests and career guidance programs. After searching using these terms alone, "Australia" and "New Zealand" were then added to each search. In addition, the above databases were searched using the names of authors identified in the first search wave. Lastly, reference lists from the articles obtained from these searches were also inspected for relevant articles. The identified articles were then categorized

according to the main focus for each. The review was organised in this way to acquaint the reader with the specific sub-domains that have received research attention. Each category therefore reflects the realm of evidence gathered in each sub-domain of interest. Most of the groupings consisted of approximately nine articles, although several categories (e.g., Tests of Theory, Cultural Comparisons) contained fewer studies. This review, then, presents an overall picture of career development research over the last half decade in Australia and New Zealand.

Tests of Career Development Theory

Some attention was given to testing specific career theories during the period of the review, with Super's (1957, 1990) career stage theory being scrutinized in two investigations. Firstly, Smart and Peterson (1997) used a sample ($N = 226$) of Australian adults to assess the efficacy of Super's (1990) notion of recycling. These authors hypothesized that adults either considering, or in the process of changing their careers, would experience more concerns commensurate with Super's earliest stage of career development (exploration) than controls, who were not considering a career change. As predicted, they found exploration-stage concerns varied significantly according to participant standing in the career change process, thus supporting Super's contention that people revisit career development stages when changing their career. While this study, like previous research in Australia (see Hesketh, Elmslie & Kaldor, 1990; Smart & Peterson, 1994) did reveal "patterns of career orientation that are quite similar to those observed in the United States" (p. 371), the authors argued that such tests of theory do need to be replicated in other cultures.

Smart (1998) also tested Super's career stage model with regard to the relationship between attitudes towards work for Australian professional women and their career life cycle. A sample of dietitians ($N = 414$) were surveyed as to their career stage concerns and attitudes.

Those in the exploration stage reported low satisfaction with pay and low job involvement. Participants in the establishment stage were more satisfied with pay and less willing to relocate for promotion, while those in the maintenance stage were more committed to their profession and more involved in their careers. Smart concluded that Super's model provided a useful framework for understanding Australian women's career development.

Tests of Career Development Constructs

Vocational interests, a construct fundamental to the career development field, provided a focus for the following five investigations. Of these, three studies (Goddard, Patton & Simons, 1999; Goddard, Simons & Patton, 2000; Simons, Goddard & Patton, 2000) reported on the reliability and validity of the Vocational Interest Survey for Australia (VISA; Pryor, 1995) with unemployed adults. The authors reported a two-factor solution (people and things) and, in the case of an unemployed white collar sample, a three-factor solution (management, manual and service), as being more appropriate for use by counsellors with unemployed adults than the eight VISA subscales identified using the instrument's normative sample of secondary school students. The different context that unemployed adults experience was used to explain this anomaly. The authors argued for multi-sample norming of the VISA due to the systematically different clustering of interests as a function of the sample tested.

The fourth study involving vocational interests (Keevers & Bradley, 1999) investigated self-concept outcomes for three groups ($N = 55$) of Year 9 students with regard the use of the Career Interest Test - Computer Edition (CIT; Athanasou, 1994). Two of the three groups utilized the CIT to gain a career interest profile and then received a series of weekly career education lessons in which they explored jobs and their personal and educational requirements. Group 1 was exposed to five extra weeks of career exploration than Group 2. The third group did not use the CIT, nor did they undertake the same career exploration

component, rather, they attended the school's standard career program. The most positive effect on self-concept was found for Group 1, which led the study to conclude that there were benefits in clarifying career interests via the CIT, in particular with an extended period of subsequent career search activity.

In the final study of vocational interests undertaken in Australia, Hosking and Athanasou (1997) found no support for the relationship between interests and job satisfaction. They used questionnaire and interview data gathered from unskilled ($N = 120$) and skilled workers ($N = 54$) and found no significant correlations between congruence measures and job satisfaction in either of the participant groups. Indeed, the authors found that "some of the most incongruent subjects loved their jobs while some other congruent subjects detested them" (p. 25).

Career maturity is another key construct used in career development research. Patton and Creed (2001) investigated adolescent career maturity and career decision-making in a large and diverse sample ($N = 1,971$) of Australian high school students. Their findings corroborated a developmental progression in career maturity and, on the whole, found that the pattern of gender differences reflected the generally accepted tenet that girls report higher maturity than boys. The authors also found gender differences in levels of indecision, with males more certain of their career choices than females. This finding was explained in terms of the greater complexity of young women's career choice. Younger students were found to be more certain than older students in their career decision-making. External decisional pressures in the form of transition points in the school system were argued to impact on this finding. The authors concluded that, while future studies of this nature were needed to further the knowledge base on gender differences, demographic and contextual factors should also be taken into consideration to better understand the career development of students.

In a related study, which examined career decision-making and self-efficacy, Tuck, Rolfe and Adair (1995) sampled 341 Year 11 New Zealand students. Like Patton and Creed (2001),

they found female adolescents to be more indecisive than their male counterparts. However, the results with regard to task specific self-efficacy were equivocal, and the authors concluded that a disposition toward indecisiveness might be moderated by the relationship between career self-efficacy and career decidedness.

Career-Related Decisions

Australian students are required to negotiate a series of decision points during their high school years. Late in Year 10, students have to select subjects for the last two years of school. At the end of Year 12 they have to indicate their university preferences, decide upon university offers, and select university degree courses. A series of studies was undertaken in one Australian State that tracked three cohorts of students from Year 12 to university across these three latter decision points. The results painted a clear picture of how the tertiary entrance system in Australia very much drives the career choice process. Hesketh (1998) found that students were inadequately informed as to career options and were poor at predicting their tertiary entrance scores - males tended to overestimate their achievement level while females underestimated. This author argued for more extensive career information to be available to students generally, and that specifically it be made available during the period when they have to consider the tertiary offers they receive.

Hesketh and Whiteley (1995) reported on the first two waves of data collected for the above project. They examined students' decision-making approaches to formulating preferences for university entrance. Students were found to consider five different criteria: the competitiveness of the course, location of the university, future job prospects, scholarship opportunities, and the advice received from family or friends. The authors also measured students' confidence in outcomes, the number of revisions made to preferences, reasons for changing preferences, and the help received in making the decisions. In response to several

key findings, such as the students' unrealistic aspirations and the proliferation of preference revisions, specific recommendations were made related to the provision of better and more timely career information by government and university bodies.

Career-related decisions are associated with outcomes that are delayed. For instance, people spend extended periods involved in study or training to gain the projected benefits from a favored job or way of life. Hesketh, Watson-Brown and Whiteley (1998) aimed to determine whether preference change was a function of the timing of outcomes. They speculated that "one element of wisdom in career decision-making may relate to an ability to avoid excessive time-based value discounting, and hence to exercise self control in the face of immediate positive gains" (p. 90). They found, with their university sample ($N = 136$), that participants did reverse preferences according to the options available at different times, thus value discounting was deemed to be applicable to career-related decisions.

Middleton and Gillies (2000) investigated the validity of the US developed Aptitude-Based Career Decision test (ABCD; Ball Foundation, 1975), which is used in a number of Australian high schools to predict university entrance scores. The ABCD was found to be a useful predictor of academic achievement during Years 11 and 12, with two of the instrument's subtests, Vocabulary and Numerical Computation, being the strongest predictors of university entrance scores. Although Middleton and Gillies recommended its use in the career decision-making process, they warned that testers should not simply rely on a single piece of information.

Subject selection and its impact upon tertiary success formed the focus for a study by Jones, Holder and Robinson (2000). These authors demonstrated a weakness inherent in the Australian system of tertiary entrance admission criteria when they tested the academic literacy skills of four cohorts of first year university pharmacy students. They found that students who chose to do the more challenging science/mathematics subjects in the final two

years of high school in order to maximize their tertiary entrance score had poorer academic literacy skills than those who took more generic courses. These authors called for career practitioners to be aware of the possible negative impact of this strategy, as students may be disadvantaged by not developing adequate communication skills that are essential for progress in a science-related degree.

A study by Young, Fraser and Woolnough (1997), which incorporated both qualitative and quantitative data gathering techniques, was designed to test the extent to which out-of-school and in-school factors influenced adolescents' decisions to pursue a career in the physical sciences and engineering. Results from the 20 urban and rural schools participating ($N = 729$ students) indicated that reasons for choosing to become scientists or engineers were found to be generally similar across school settings, and that a variety of social, school and personal influences were considered. The authors concluded, "the effect of the school in influencing career choice was confounded by the student's own motivation (psychological aspects) and the student's friends and family (sociological effects)" (p. 209).

Albion (2000) investigated career-choice difficulties in Year 11-12 students ($N = 347$) who attended coeducational State schools, coeducational private and single-gender private schools. She found that young people, regardless of their gender, experienced similar difficulties when making career-related decisions, although boys were less troubled than girls when making career decisions while lacking information. The type of school attended had little impact on outcomes measured, with the only difference being that students at single-gender schools were more undecided than students from coeducational schools. One particularly revealing finding was the significant number of students who had difficulties with the career decision-making process due to a belief that there was an "ideal" career. The implications here are that counsellors should try to help students guard against adopting an inflexible approach to their

career decision-making and that they should point out the shortfalls of unrealistically high hopes and expectations about "ideal" careers.

Gender Differences

Three studies directly investigated gender differences in children's career development. Watt (1996) examined boys' and girls' perceptions of their talent for school subjects. Samples were taken from two Year levels (7 & 11) across five schools. Findings supported a trend often uncovered in the literature that boys considered themselves more talented than girls in mathematics, whereas girls regarded English as their strongest talent. This investigation uncovered some interesting features beyond this confirmatory result. For example, even the relatively small subset of girls who perceived themselves as most talented in mathematics planned to pursue less mathematics-related careers than their male counterparts.

McMahon and Patton (1997) examined gender and developmental differences of children with regard to their career aspirations and their perceptions of factors that influenced their thinking about careers. Focus groups were conducted with children from pre-school to Year 12, which revealed both gender and age differences in career aspirations and the influences that students believed were related to career ambitions. The children exhibited stereotypical views of jobs suitable for their genders. Young women were also more orientated towards thoughts about combining career and family life while boys were more active in their career planning efforts. In addition, the females in this study were less interested in career advancement than the males. Patton and McMahon advocated the use of different approaches to career guidance to cater for the separate needs of boys and girls as well the development of resources to overcome gender stereotyping of careers.

In New Zealand, Carpenter and Inkson (1999) studied students in their final year of high school with regard to awareness of the new work environment (e.g., downsizing, flattening of

organisational hierarchies, reduction in full time jobs). This sample ($N = 125$) was found to be "well attuned to the emergent realities of the new careers era" (p. 29). However, girls showed more awareness than boys of the demands of the new world of work. This difference was explained in terms of young women's approach to career development. The authors argued that since girls have already been socialized to expect their careers to be interrupted they are prepared for career flexibility and improvisation.

The only other studies directly concerning gender focused on adult women's career development. In New Zealand, Gatenby and Humphries collected survey and qualitative responses every six months for a period of nine years from a group of women who initially volunteered to participate in the study after they had attended a women and management class in 1989. In one paper, Gatenby and Humphries (2000) conducted discourse analyses on responses concerning career aspirations (vis-à-vis career, balance, success and flexibility). The authors concluded that, although this group of women were satisfied with their careers, they still operated under the assumption that "they are the ones who must adapt and change in order to have the lives they want" (p. 51). The demands of balance and flexibility as criteria for career success were seen to place real pressures on these women's lives.

A sample of career mothers with children aged 6 or younger was examined by Gill and Muller (1998) to investigate levels of role strain and psychological distress. Participants were grouped according to their stage of career development ("early" or "late") using Levinson's (1986) model. On a variety of measures, including role overload, interference of work on family, interference of family on work, and psychological distress, late career mothers fared worse than the early career mothers. The authors highlighted the need to find ways to assist women, particularly those in an advanced stage of career development, to better combine work and family roles.

The demands on women juggling the roles of working, studying and parenting were also investigated (Alderton & Muller, 2000). Questionnaires were used to gather demographic information (e.g., marital status, children, study and work hours, and household responsibilities), data concerning perceived personal control, social support, and measures of role overload and role conflict. Participants ($N = 153$) were women working in either casual, part-time or full-time employment while also studying at the postgraduate level and caring for between one and four children. The study identified significant relationships between role demands, personal control and role strain. In particular, personal control was found to be the major contributor to the reduction of role strain for these women. Other findings were that younger women reported higher levels of role strain, and 63 per cent of participants reported they undertook most or all of the responsibility for household duties.

Likewise, in a qualitative study of 14 women in senior positions in a higher education institution, Poole, Nielsen and Skoien (1995) found women performed an inequitable share of household duties and experienced difficulty accommodating the mix of demands from home life and career. In a large longitudinal study, VandenHeuvel and Robertson (1995) tracked the education and career paths of a sample of 991 Australians from 1971-1992, and found that women held more lower status jobs, had lower qualifications and earned less money than the men in the study. Finally, gender differences were also uncovered when participants ($N = 136$ females, 43 males) from a range of business organisations rated the relative importance of sources of social and workplace support for their careers (Horrigan, Poole & Nielsen, 1996). Women placed more importance on the family and colleagues outside of work than men. These results were explained with regard to the extra responsibilities that women shouldered compared to men.

Cultural Comparisons

As in other realms of psychological research, the field of career development has been criticized for its reliance upon samples of Caucasian, middle-class males. There are very few studies that have specifically set out to inform practitioners and theorists about other cultural groups' career-related experiences. Indeed, the linear progression that has largely formed the basis for career development theorizing may not apply to these individuals (Gool & Patton, 1999). Five studies concerned with ethnicity met the criteria for this review. The first four dealt with the way in which participants' cultural backgrounds affected various aspects of career development.

Lysaght, Tuck and Adair (1999) tested whether the employment commitment of Year 12 students ($N = 668$) was associated with gender, employment status of parents, or ethnicity. Only ethnicity emerged as a determining variable. Adolescents from an Asian or Pacific Island cultural background reported higher levels of employment commitment than those from European or Maori ancestry. Ethnic differences were also found in Australia by Fan and Atoine (1999) when they examined employment destinations of young adults two years after they had graduated from a Melbourne university. Participants who came from English-speaking backgrounds were more likely to be employed either full-time or part-time than those from non-English-speaking backgrounds (e.g., Italian, Greek and Vietnamese).

Gool and Patton (1999) interviewed twelve aboriginal females from two secondary schools about their perceptions of Aboriginality, racism, teachers, family influences, careers and employers. The girls also completed a survey about their school, areas of study, possible career aspirations and parents' occupations. This study was conducted with the consent of the Aboriginal elders and formed a first step toward understanding the particular career-related needs and concerns of Aboriginal females. Many distinguishing factors were revealed including the girls' Aboriginal self-identity, which differed from a white Western identity by

incorporating a predominance of respect for the family over a sense of autonomy. Racism impinged on identity with anticipation of, or actual experience of discrimination having pre-empted concerns about difficulties with employers and access to the employment market. The authors recommended active involvement of elders and family/community as educational and vocational role models. Furthermore, programs on racism and its effects and ways of dealing with it as a potential career barrier were advocated.

Chung, Walkey and Bemak (1997) surveyed New Zealand-born Chinese students (N = 108) and students with an Anglo-Saxon background (N = 203) from 25 New Zealand public schools six months prior to their final high school examination and soon after the examination results were published. It was expected that the Chinese students would receive higher marks, have higher educational and occupational aspirations, and that their parents would have higher education and occupational expectations for them than their Anglo-Saxon counterparts. No differences were found between the two student groups, although the parental hypotheses were supported. Close correspondence was found between parents' and children's educational and occupational aspirations. The authors discussed the results in the context of previous US research of Chinese students and concluded that "parental pressure to succeed produces similar outcomes for Chinese students whether they live in the United States or New Zealand" (p. 488).

Woolnough et al. (1997) reported on cross-cultural data gathered in Australia (N = 729), Canada (N = 316), China (N = 1,009), Portugal (N = 499), Japan (N = 5559) and the UK (N = 1,210), which revealed differences between students who were planning to study science in higher education and those who were not. Science students preferred planning their own experiments, gained more from practical projects, and enjoyed science/technology competitions more than non-science students. These differences were generally reflected across all cultures. The most influential factors found to encourage students to pursue science-

based careers included the quality of science teaching, the intellectual stimulation of the science curriculum, and having scientific hobbies. As to cultural differences, the influence of science teachers was strongest in Australia, China and England, and science as a career was most attractive in Australia and Portugal. In the main, science students were found to be more introverted, task-centred, tough-minded and more interested in ideas, while non-science students were more extroverted, tender-minded, and more interested in people. The authors suggested an increased focus on the training and recruitment of science teachers, and the development of stimulating extra-curricular activities to entice students to continue with their study of science across all cultures.

Tests of Career Programs for Children

There were few empirical tests of career education programming in Australia and New Zealand. Indeed, the deregulated and unstructured approach to curriculum based career education in Australia has suffered much criticism (e.g., McCowan & Hyndman, 1998). It has continued to be planned and implemented in a disjointed fashion because it has, as McMahon (1997) asserted, "largely occurred on an ad hoc basis at a school level" (p. 137) rather than as a coherent enterprise at a national level. In a recent review of career intervention studies spanning 25 years (Prideaux, Creed, Muller, & Patton, 2001), only one Australian study (Gillies, McMahon, & Carroll, 1998) was identified. Gillies et al. designed a 10 week career education program for Year six children ($N = 107$). This was based upon two learning objectives taken from the national curriculum framework (Australian Council of Education, 1991) concerning self-knowledge in relation to the world of work. The students were found to benefit from the program in terms of increased job knowledge, understanding of personal attributes required for job success, and ability to connect knowledge acquisition at school with job requirements. It was suggested, however, that future programming could be lengthened

and delivered to younger students, as this set of lessons was not successful in altering children's stereotypical views of career roles.

Using a sub-set of the data ($N = 55$) gathered in the above study, McMahon, Gillies and Carroll (1999) examined the effect of the short term career development program on Year six children's perceptions of occupational aspirations and whether particular jobs were best performed by males or females. Despite participating in the program, which did emphasize the changing roles of men and women in the world of work, girls aspired to jobs in service professions more than boys while the boys nominated jobs in sport and the military more than girls. For example, even though the majority of students agreed that computer programmers and golf professionals could be either male or female, not one girl listed any type of sportsperson as their occupational aim.

Finally, in a related paper, McMahon, Gillies and Carroll (2000) reported on the perceptions of primary school children ($N = 55$) about what they learned at school and whether they could identify how this knowledge related to the jobs they were interested in. The majority of participants were able to make links between school learning and occupational requirements. For example, mathematics was listed most frequently as being helpful for occupations such as nurse, fashion designer, and shop assistant. The school was found to influence career development through the career education program but also via life experiences gained both within and outside the school. From this, the authors stressed that career guidance practitioners should be aware of the benefits gained by children from diverse sources. They argued that such life experiences might be beneficial in developing greater self-awareness and help children prepare for future career decision-making.

Career Development Training for Adults

In Australia, unemployment is acknowledged as a fundamental social problem. However, the typical occupational skills and personal development training provided for unemployed people has demonstrated only temporary improvements in the well-being of participants (Creed, 1997; Creed, Hicks & Machin, 1996). A comprehensive review by Creed, Machin and Nicholls (1998) showed that benefits acquired immediately after the delivery of these courses were not sustained at three-month follow-up evaluations. These authors recommended the development of theory-based training systems, particularly those with efficacy enhancing strategies, because self-efficacy was identified as a key variable in determining how well trainees did in terms of performance levels and skill maintenance over subsequent months (e.g., Machin & Fogarty, 1997; Phelps & Creed, 1995). Furthermore, they urged researchers to undertake more field evaluations of programs in the Australian context as a priority for assisting unemployed individuals to "maximize their chances of finding work, and develop skills that will inoculate them against the serious negative effects of unemployment" (p. 33).

A qualitative study by McDonald (1999) used the career choice framework proposed by social cognitive career theorists (Brown & Lent, 1996) to examine issues related to career self-efficacy (e.g., work goals, barriers to employment, perceived skills and abilities). Interviews were conducted with seven adults who had various physical, sensory and psychiatric disabilities and were participating in a rehabilitation program designed to enhance work capabilities. Participants generally reported increases in personal and career self-efficacy as a result of involvement in the program.

Donohue and Patton (1998) evaluated a career guidance program for a group of long-term unemployed people ($N = 58$), which aimed to enhance self and opportunity awareness, decision-making and transition skills. Participants were surveyed prior to and immediately after the intervention, with interviews conducted to augment these data. Results affirmed

support for the career guidance program, with positive outcomes including expanded work options, increased knowledge of self, verification of interests and abilities, and improved self-confidence. The authors stressed the need for an expansion of career counselling services to assist this group to develop self-awareness, self-confidence and a more realistic appraisal of career options.

In another program evaluation, Patton (2000) reported on the discrepancy between the need for quality career counselling and the paucity of suitable training for career practitioners. This author evaluated outcomes for a Master's level career guidance education program at an Australian university ($N = 137$), and asserted that within the context of ongoing changes in the workforce, career guidance personnel must take on new roles such as information management, group counselling, placement, follow-up, and networking.

Goble (1998) examined the predictive validity of a measure of post-secondary training success that was being used widely in vocational counselling for the selection of students for higher education training courses, and for personnel selection. First year engineering students ($N = 213$) completed four subtests from the Differential Aptitude Test battery (de Lemos, 1989). The major predictor of performance in technical education and training programs was found to be general ability rather than specific abilities (Verbal Reasoning, Numerical Ability, Space Relations and Mechanical Reasoning). The minor contributions made by the specific ability measures cast doubt on the supposed differential nature of the test battery.

Finally, two studies are reported that investigated career development training within business organizations. Humphries and Carr (1999) surveyed the methods and extent to which 16 large New Zealand companies conducted formal career development programs. The survey results generally reflected positive responses to the practices and value of the career development systems. The main methods used were in-house training and external seminars, although an absence of senior career advisors was noted. The benefits identified were related

to the skilling of employees for future job requirements so that the organization was equipped with a bank of talent on which to draw. Secondly, Hesketh (1996) reported on two Australian studies (N = 78 & 114) undertaken in a large chemical processing company that had a strong agenda for training. Around one third of participants in the first study were identified as status quo-oriented individuals (i.e., not considering training alternatives). These were longer-serving, older employees with lower qualifications. In the second study, a large majority of respondents placed highest priority on the status quo (i.e., they ranked doing a good job higher than training, even when training was presented in a "threat of layoff" context). Hesketh called for more research in this area to gain a better understanding of individual as well as contextual factors impacting upon responses to the need for change within organizations. She also highlighted the passive role that older and more established employees have been accustomed to, suggesting that future research will be required to find ways to encourage continuous and effortful career planning within organizations.

Conclusion

Career development research in Australia and New Zealand is diverse and thriving. Yet, contrary to Stead and Watson's (1998) contention that USA developed theories of career development are not universally applicable, Australian and New Zealand researchers have not been concerned that such theories, constructs and tools are applied uncritically to people in this part of the world. Undoubtedly, this critique is yet to be adequately tested and future work will need to focus purposefully on the models and assessment methods currently being utilised.

Career decision-making research needs also to be expanded. In particular, the key decision-making points for adolescents in these two countries need to inform the context for

career choice behaviours. Findings in this area also indicate that students' unrealistic career aspirations warrant attention.

An appraisal of the gender studies revealed common findings. Boys were drawn to mathematics and science more than girls, and girls were found to demonstrate a more flexible approach to career planning than boys. The prevalence of gender stereotyping of careers amongst children also persists. Adult males were less involved in home duties than women, and the dilemma for women over the stressors associated with combining work and family roles was most salient. The studies of cultural differences, while in short supply, have provided some important information about the difficulties faced by minority groups such as Maoris in New Zealand, Aboriginal females and people from non-English-speaking backgrounds in Australia. These groups generally appeared more disadvantaged as to employment opportunities.

There are imperatives for proficient career education programs to be designed, tested, and implemented. The school-to-work transition process is characterised by complexity and multiple pathways that can give rise to confusion, indecision and, in some instances, apathy. Strong indications have emerged accentuating the need for coherence of career service delivery across all States of Australia. Career development research is confronted with the crucial task of deciding exactly what types of programs work, when they should be delivered and for how long. In other words what specific career education initiatives achieve the goal of enhancing the school-to-work process of all students. The evaluation of career development training for adults also requires more scrutiny in order to improve the situation for groups such as the unemployed and those with disabilities. Workplace based evaluations are in their infancy and more field examinations of the efficacy of programs within local contexts are required. Indeed, an expansion of career counselling services and adequate training for its practitioners within Australia and New Zealand are an imperative.

The present review has revealed additional implications for career practitioners beyond this fundamental need for the upgrading of their training and services. Foremost is an appeal for practitioners to adopt a collegial approach with researchers. This would assist the extension of theoretical knowledge by giving it contextual grounding, and lead to better theoretically guided practice. Career development practitioners may also benefit from staying abreast of the latest research findings to guide them when revising outmoded procedures. For example, gender differences found in the studies reviewed here may inspire the development of separate programs tailored to the disparate needs of male and female students. While this theory/practice model has implications for career development practitioners, it also implies that career development researchers need to supplement their work by going beyond the confines of their university precincts with university convenience samples and conduct research in the field.

Finally, there is a need to acknowledge that many highly informative articles did not meet the criteria for inclusion in this review. These were generally case studies or reports of a descriptive nature that nonetheless made enlightened contributions to the field. Readers are directed to the "Special Feature" and "Case Studies" sections of recent issues of the *Australian Journal of Career Development* for samples of this literature.

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A Review of Career Development Research

in Australia and New Zealand from 1995-2000

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Abstract

This paper provides a review of the career development research studies that have published in Australia and New Zealand between 1995 and 2000. The review has grouped the literature according to the categories of career development theory, career development constructs, career-related decision-making, gender, cultural comparisons, career programs for children and training programs for adults. These groupings were created to correspond with the main focus of each study.

In Australia and New Zealand, career development has become a burgeoning field of study that has attracted research attention from a wide range of perspectives. This review of the literature reported between 1995 and the turn of the century aims to encapsulate the accrued evidence from this part of the world. It is intended to inform theorists and practitioners working here and to provide future direction for research endeavours. Moreover, it is anticipated that the present review will serve to inform experts in the field of career development research world-wide, particularly for those interested in the continuance of cross cultural comparisons.

Specific criteria were laid down to demarcate the boundaries for this review. Initially, all articles concerning career development in Australia and New Zealand published between 1995 and 2000 were taken into consideration. Following this, a strict definition of empirical research was applied in that "the evaluation or assessment of a hypothesis or theory by appeal to data, facts and experimentation" (Reber, 1995, p. 249) was required. Accordingly, studies accepted for the review had to demonstrate sound methodology and clearly describe the systematic collection of data and testing of hypotheses. Policy documents, case studies and descriptive studies were not included. In addition, papers were omitted if deemed to contribute little to the knowledge base or if they appeared to possess limited potential for theory building.

The search process involved the main data bases (e.g., Psychlit, ERIC) using key terms of career development, career maturity, career decision-making, careers, career interventions, career guidance, vocational guidance, vocational interests and career guidance programs. After searching using these terms alone, "Australia" and "New Zealand" were then added to each search. In addition, the above databases were searched using the names of authors identified in the first search wave. Lastly, reference lists from the articles obtained from these searches were also inspected for relevant articles. The identified articles were then categorized

according to the main focus for each. The review was organised in this way to acquaint the reader with the specific sub-domains that have received research attention. Each category therefore reflects the realm of evidence gathered in each sub-domain of interest. Most of the groupings consisted of approximately nine articles, although several categories (e.g., Tests of Theory, Cultural Comparisons) contained fewer studies. This review, then, presents an overall picture of career development research over the last half decade in Australia and New Zealand.

Tests of Career Development Theory

Some attention was given to testing specific career theories during the period of the review, with Super's (1957, 1990) career stage theory being scrutinized in two investigations. Firstly, Smart and Peterson (1997) used a sample ($N = 226$) of Australian adults to assess the efficacy of Super's (1990) notion of recycling. These authors hypothesized that adults either considering, or in the process of changing their careers, would experience more concerns commensurate with Super's earliest stage of career development (exploration) than controls, who were not considering a career change. As predicted, they found exploration-stage concerns varied significantly according to participant standing in the career change process, thus supporting Super's contention that people revisit career development stages when changing their career. While this study, like previous research in Australia (see Hesketh, Elmslie & Kaldor, 1990; Smart & Peterson, 1994) did reveal "patterns of career orientation that are quite similar to those observed in the United States" (p. 371), the authors argued that such tests of theory do need to be replicated in other cultures.

Smart (1998) also tested Super's career stage model with regard to the relationship between attitudes towards work for Australian professional women and their career life cycle. A sample of dietitians ($N = 414$) were surveyed as to their career stage concerns and attitudes.

Those in the exploration stage reported low satisfaction with pay and low job involvement. Participants in the establishment stage were more satisfied with pay and less willing to relocate for promotion, while those in the maintenance stage were more committed to their profession and more involved in their careers. Smart concluded that Super's model provided a useful framework for understanding Australian women's career development.

Tests of Career Development Constructs

Vocational interests, a construct fundamental to the career development field, provided a focus for the following five investigations. Of these, three studies (Goddard, Patton & Simons, 1999; Goddard, Simons & Patton, 2000; Simons, Goddard & Patton, 2000) reported on the reliability and validity of the Vocational Interest Survey for Australia (VISA; Pryor, 1995) with unemployed adults. The authors reported a two-factor solution (people and things) and, in the case of an unemployed white collar sample, a three-factor solution (management, manual and service), as being more appropriate for use by counsellors with unemployed adults than the eight VISA subscales identified using the instrument's normative sample of secondary school students. The different context that unemployed adults experience was used to explain this anomaly. The authors argued for multi-sample norming of the VISA due to the systematically different clustering of interests as a function of the sample tested.

The fourth study involving vocational interests (Keevers & Bradley, 1999) investigated self-concept outcomes for three groups ($N = 55$) of Year 9 students with regard the use of the Career Interest Test - Computer Edition (CIT; Athanasou, 1994). Two of the three groups utilized the CIT to gain a career interest profile and then received a series of weekly career education lessons in which they explored jobs and their personal and educational requirements. Group 1 was exposed to five extra weeks of career exploration than Group 2. The third group did not use the CIT, nor did they undertake the same career exploration

component, rather, they attended the school's standard career program. The most positive effect on self-concept was found for Group 1, which led the study to conclude that there were benefits in clarifying career interests via the CIT, in particular with an extended period of subsequent career search activity.

In the final study of vocational interests undertaken in Australia, Hosking and Athanasou (1997) found no support for the relationship between interests and job satisfaction. They used questionnaire and interview data gathered from unskilled ($N = 120$) and skilled workers ($N = 54$) and found no significant correlations between congruence measures and job satisfaction in either of the participant groups. Indeed, the authors found that "some of the most incongruent subjects loved their jobs while some other congruent subjects detested them" (p. 25).

Career maturity is another key construct used in career development research. Patton and Creed (2001) investigated adolescent career maturity and career decision-making in a large and diverse sample ($N = 1,971$) of Australian high school students. Their findings corroborated a developmental progression in career maturity and, on the whole, found that the pattern of gender differences reflected the generally accepted tenet that girls report higher maturity than boys. The authors also found gender differences in levels of indecision, with males more certain of their career choices than females. This finding was explained in terms of the greater complexity of young women's career choice. Younger students were found to be more certain than older students in their career decision-making. External decisional pressures in the form of transition points in the school system were argued to impact on this finding. The authors concluded that, while future studies of this nature were needed to further the knowledge base on gender differences, demographic and contextual factors should also be taken into consideration to better understand the career development of students.

In a related study, which examined career decision-making and self-efficacy, Tuck, Rolfe and Adair (1995) sampled 341 Year 11 New Zealand students. Like Patton and Creed (2001),

they found female adolescents to be more indecisive than their male counterparts. However, the results with regard to task specific self-efficacy were equivocal, and the authors concluded that a disposition toward indecisiveness might be moderated by the relationship between career self-efficacy and career decidedness.

Career-Related Decisions

Australian students are required to negotiate a series of decision points during their high school years. Late in Year 10, students have to select subjects for the last two years of school. At the end of Year 12 they have to indicate their university preferences, decide upon university offers, and select university degree courses. A series of studies was undertaken in one Australian State that tracked three cohorts of students from Year 12 to university across these three latter decision points. The results painted a clear picture of how the tertiary entrance system in Australia very much drives the career choice process. Hesketh (1998) found that students were inadequately informed as to career options and were poor at predicting their tertiary entrance scores - males tended to overestimate their achievement level while females underestimated. This author argued for more extensive career information to be available to students generally, and that specifically it be made available during the period when they have to consider the tertiary offers they receive.

Hesketh and Whiteley (1995) reported on the first two waves of data collected for the above project. They examined students' decision-making approaches to formulating preferences for university entrance. Students were found to consider five different criteria: the competitiveness of the course, location of the university, future job prospects, scholarship opportunities, and the advice received from family or friends. The authors also measured students' confidence in outcomes, the number of revisions made to preferences, reasons for changing preferences, and the help received in making the decisions. In response to several

key findings, such as the students' unrealistic aspirations and the proliferation of preference revisions, specific recommendations were made related to the provision of better and more timely career information by government and university bodies.

Career-related decisions are associated with outcomes that are delayed. For instance, people spend extended periods involved in study or training to gain the projected benefits from a favored job or way of life. Hesketh, Watson-Brown and Whiteley (1998) aimed to determine whether preference change was a function of the timing of outcomes. They speculated that "one element of wisdom in career decision-making may relate to an ability to avoid excessive time-based value discounting, and hence to exercise self control in the face of immediate positive gains" (p. 90). They found, with their university sample ($N = 136$), that participants did reverse preferences according to the options available at different times, thus value discounting was deemed to be applicable to career-related decisions.

Middleton and Gillies (2000) investigated the validity of the US developed Aptitude-Based Career Decision test (ABCD; Ball Foundation, 1975), which is used in a number of Australian high schools to predict university entrance scores. The ABCD was found to be a useful predictor of academic achievement during Years 11 and 12, with two of the instrument's subtests, Vocabulary and Numerical Computation, being the strongest predictors of university entrance scores. Although Middleton and Gillies recommended its use in the career decision-making process, they warned that testers should not simply rely on a single piece of information.

Subject selection and its impact upon tertiary success formed the focus for a study by Jones, Holder and Robinson (2000). These authors demonstrated a weakness inherent in the Australian system of tertiary entrance admission criteria when they tested the academic literacy skills of four cohorts of first year university pharmacy students. They found that students who chose to do the more challenging science/mathematics subjects in the final two

years of high school in order to maximize their tertiary entrance score had poorer academic literacy skills than those who took more generic courses. These authors called for career practitioners to be aware of the possible negative impact of this strategy, as students may be disadvantaged by not developing adequate communication skills that are essential for progress in a science-related degree.

A study by Young, Fraser and Woolnough (1997), which incorporated both qualitative and quantitative data gathering techniques, was designed to test the extent to which out-of-school and in-school factors influenced adolescents' decisions to pursue a career in the physical sciences and engineering. Results from the 20 urban and rural schools participating ($N = 729$ students) indicated that reasons for choosing to become scientists or engineers were found to be generally similar across school settings, and that a variety of social, school and personal influences were considered. The authors concluded, "the effect of the school in influencing career choice was confounded by the student's own motivation (psychological aspects) and the student's friends and family (sociological effects)" (p. 209).

Albion (2000) investigated career-choice difficulties in Year 11-12 students ($N = 347$) who attended coeducational State schools, coeducational private and single-gender private schools. She found that young people, regardless of their gender, experienced similar difficulties when making career-related decisions, although boys were less troubled than girls when making career decisions while lacking information. The type of school attended had little impact on outcomes measured, with the only difference being that students at single-gender schools were more undecided than students from coeducational schools. One particularly revealing finding was the significant number of students who had difficulties with the career decision-making process due to a belief that there was an "ideal" career. The implications here are that counsellors should try to help students guard against adopting an inflexible approach to their

career decision-making and that they should point out the shortfalls of unrealistically high hopes and expectations about "ideal" careers.

Gender Differences

Three studies directly investigated gender differences in children's career development. Watt (1996) examined boys' and girls' perceptions of their talent for school subjects. Samples were taken from two Year levels (7 & 11) across five schools. Findings supported a trend often uncovered in the literature that boys considered themselves more talented than girls in mathematics, whereas girls regarded English as their strongest talent. This investigation uncovered some interesting features beyond this confirmatory result. For example, even the relatively small subset of girls who perceived themselves as most talented in mathematics planned to pursue less mathematics-related careers than their male counterparts.

McMahon and Patton (1997) examined gender and developmental differences of children with regard to their career aspirations and their perceptions of factors that influenced their thinking about careers. Focus groups were conducted with children from pre-school to Year 12, which revealed both gender and age differences in career aspirations and the influences that students believed were related to career ambitions. The children exhibited stereotypical views of jobs suitable for their genders. Young women were also more orientated towards thoughts about combining career and family life while boys were more active in their career planning efforts. In addition, the females in this study were less interested in career advancement than the males. Patton and McMahon advocated the use of different approaches to career guidance to cater for the separate needs of boys and girls as well the development of resources to overcome gender stereotyping of careers.

In New Zealand, Carpenter and Inkson (1999) studied students in their final year of high school with regard to awareness of the new work environment (e.g., downsizing, flattening of

organisational hierarchies, reduction in full time jobs). This sample ($N = 125$) was found to be "well attuned to the emergent realities of the new careers era" (p. 29). However, girls showed more awareness than boys of the demands of the new world of work. This difference was explained in terms of young women's approach to career development. The authors argued that since girls have already been socialized to expect their careers to be interrupted they are prepared for career flexibility and improvisation.

The only other studies directly concerning gender focused on adult women's career development. In New Zealand, Gatenby and Humphries collected survey and qualitative responses every six months for a period of nine years from a group of women who initially volunteered to participate in the study after they had attended a women and management class in 1989. In one paper, Gatenby and Humphries (2000) conducted discourse analyses on responses concerning career aspirations (vis-à-vis career, balance, success and flexibility). The authors concluded that, although this group of women were satisfied with their careers, they still operated under the assumption that "they are the ones who must adapt and change in order to have the lives they want" (p. 51). The demands of balance and flexibility as criteria for career success were seen to place real pressures on these women's lives.

A sample of career mothers with children aged 6 or younger was examined by Gill and Muller (1998) to investigate levels of role strain and psychological distress. Participants were grouped according to their stage of career development ("early" or "late") using Levinson's (1986) model. On a variety of measures, including role overload, interference of work on family, interference of family on work, and psychological distress, late career mothers fared worse than the early career mothers. The authors highlighted the need to find ways to assist women, particularly those in an advanced stage of career development, to better combine work and family roles.

The demands on women juggling the roles of working, studying and parenting were also investigated (Alderton & Muller, 2000). Questionnaires were used to gather demographic information (e.g., marital status, children, study and work hours, and household responsibilities), data concerning perceived personal control, social support, and measures of role overload and role conflict. Participants ($N = 153$) were women working in either casual, part-time or full-time employment while also studying at the postgraduate level and caring for between one and four children. The study identified significant relationships between role demands, personal control and role strain. In particular, personal control was found to be the major contributor to the reduction of role strain for these women. Other findings were that younger women reported higher levels of role strain, and 63 per cent of participants reported they undertook most or all of the responsibility for household duties.

Likewise, in a qualitative study of 14 women in senior positions in a higher education institution, Poole, Nielsen and Skoien (1995) found women performed an inequitable share of household duties and experienced difficulty accommodating the mix of demands from home life and career. In a large longitudinal study, VandenHeuvel and Robertson (1995) tracked the education and career paths of a sample of 991 Australians from 1971-1992, and found that women held more lower status jobs, had lower qualifications and earned less money than the men in the study. Finally, gender differences were also uncovered when participants ($N = 136$ females, 43 males) from a range of business organisations rated the relative importance of sources of social and workplace support for their careers (Horrigan, Poole & Nielsen, 1996). Women placed more importance on the family and colleagues outside of work than men. These results were explained with regard to the extra responsibilities that women shouldered compared to men.

Cultural Comparisons

As in other realms of psychological research, the field of career development has been criticized for its reliance upon samples of Caucasian, middle-class males. There are very few studies that have specifically set out to inform practitioners and theorists about other cultural groups' career-related experiences. Indeed, the linear progression that has largely formed the basis for career development theorizing may not apply to these individuals (Gool & Patton, 1999). Five studies concerned with ethnicity met the criteria for this review. The first four dealt with the way in which participants' cultural backgrounds affected various aspects of career development.

Lysaght, Tuck and Adair (1999) tested whether the employment commitment of Year 12 students ($N = 668$) was associated with gender, employment status of parents, or ethnicity. Only ethnicity emerged as a determining variable. Adolescents from an Asian or Pacific Island cultural background reported higher levels of employment commitment than those from European or Maori ancestry. Ethnic differences were also found in Australia by Fan and Atoine (1999) when they examined employment destinations of young adults two years after they had graduated from a Melbourne university. Participants who came from English-speaking backgrounds were more likely to be employed either full-time or part-time than those from non-English-speaking backgrounds (e.g., Italian, Greek and Vietnamese).

Gool and Patton (1999) interviewed twelve aboriginal females from two secondary schools about their perceptions of Aboriginality, racism, teachers, family influences, careers and employers. The girls also completed a survey about their school, areas of study, possible career aspirations and parents' occupations. This study was conducted with the consent of the Aboriginal elders and formed a first step toward understanding the particular career-related needs and concerns of Aboriginal females. Many distinguishing factors were revealed including the girls' Aboriginal self-identity, which differed from a white Western identity by

incorporating a predominance of respect for the family over a sense of autonomy. Racism impinged on identity with anticipation of, or actual experience of discrimination having pre-empted concerns about difficulties with employers and access to the employment market. The authors recommended active involvement of elders and family/community as educational and vocational role models. Furthermore, programs on racism and its effects and ways of dealing with it as a potential career barrier were advocated.

Chung, Walkey and Bemak (1997) surveyed New Zealand-born Chinese students ($N = 108$) and students with an Anglo-Saxon background ($N = 203$) from 25 New Zealand public schools six months prior to their final high school examination and soon after the examination results were published. It was expected that the Chinese students would receive higher marks, have higher educational and occupational aspirations, and that their parents would have higher education and occupational expectations for them than their Anglo-Saxon counterparts. No differences were found between the two student groups, although the parental hypotheses were supported. Close correspondence was found between parents' and children's educational and occupational aspirations. The authors discussed the results in the context of previous US research of Chinese students and concluded that "parental pressure to succeed produces similar outcomes for Chinese students whether they live in the United States or New Zealand" (p. 488).

Woolnough et al. (1997) reported on cross-cultural data gathered in Australia ($N = 729$), Canada ($N = 316$), China ($N = 1,009$), Portugal ($N = 499$), Japan ($N = 5559$) and the UK ($N = 1,210$), which revealed differences between students who were planning to study science in higher education and those who were not. Science students preferred planning their own experiments, gained more from practical projects, and enjoyed science/technology competitions more than non-science students. These differences were generally reflected across all cultures. The most influential factors found to encourage students to pursue science-

based careers included the quality of science teaching, the intellectual stimulation of the science curriculum, and having scientific hobbies. As to cultural differences, the influence of science teachers was strongest in Australia, China and England, and science as a career was most attractive in Australia and Portugal. In the main, science students were found to be more introverted, task-centred, tough-minded and more interested in ideas, while non-science students were more extroverted, tender-minded, and more interested in people. The authors suggested an increased focus on the training and recruitment of science teachers, and the development of stimulating extra-curricular activities to entice students to continue with their study of science across all cultures.

Tests of Career Programs for Children

There were few empirical tests of career education programming in Australia and New Zealand. Indeed, the deregulated and unstructured approach to curriculum based career education in Australia has suffered much criticism (e.g., McCowan & Hyndman, 1998). It has continued to be planned and implemented in a disjointed fashion because it has, as McMahon (1997) asserted, "largely occurred on an ad hoc basis at a school level" (p. 137) rather than as a coherent enterprise at a national level. In a recent review of career intervention studies spanning 25 years (Prideaux, Creed, Muller, & Patton, 2001), only one Australian study (Gillies, McMahon, & Carroll, 1998) was identified. Gillies et al. designed a 10 week career education program for Year six children ($N = 107$). This was based upon two learning objectives taken from the national curriculum framework (Australian Council of Education, 1991) concerning self-knowledge in relation to the world of work. The students were found to benefit from the program in terms of increased job knowledge, understanding of personal attributes required for job success, and ability to connect knowledge acquisition at school with job requirements. It was suggested, however, that future programming could be lengthened

and delivered to younger students, as this set of lessons was not successful in altering children's stereotypical views of career roles.

Using a sub-set of the data ($N = 55$) gathered in the above study, McMahon, Gillies and Carroll (1999) examined the effect of the short term career development program on Year six children's perceptions of occupational aspirations and whether particular jobs were best performed by males or females. Despite participating in the program, which did emphasize the changing roles of men and women in the world of work, girls aspired to jobs in service professions more than boys while the boys nominated jobs in sport and the military more than girls. For example, even though the majority of students agreed that computer programmers and golf professionals could be either male or female, not one girl listed any type of sportsperson as their occupational aim.

Finally, in a related paper, McMahon, Gillies and Carroll (2000) reported on the perceptions of primary school children ($N = 55$) about what they learned at school and whether they could identify how this knowledge related to the jobs they were interested in. The majority of participants were able to make links between school learning and occupational requirements. For example, mathematics was listed most frequently as being helpful for occupations such as nurse, fashion designer, and shop assistant. The school was found to influence career development through the career education program but also via life experiences gained both within and outside the school. From this, the authors stressed that career guidance practitioners should be aware of the benefits gained by children from diverse sources. They argued that such life experiences might be beneficial in developing greater self-awareness and help children prepare for future career decision-making.

Career Development Training for Adults

In Australia, unemployment is acknowledged as a fundamental social problem. However, the typical occupational skills and personal development training provided for unemployed people has demonstrated only temporary improvements in the well-being of participants (Creed, 1997; Creed, Hicks & Machin, 1996). A comprehensive review by Creed, Machin and Nicholls (1998) showed that benefits acquired immediately after the delivery of these courses were not sustained at three-month follow-up evaluations. These authors recommended the development of theory-based training systems, particularly those with efficacy enhancing strategies, because self-efficacy was identified as a key variable in determining how well trainees did in terms of performance levels and skill maintenance over subsequent months (e.g., Machin & Fogarty, 1997; Phelps & Creed, 1995). Furthermore, they urged researchers to undertake more field evaluations of programs in the Australian context as a priority for assisting unemployed individuals to "maximize their chances of finding work, and develop skills that will inoculate them against the serious negative effects of unemployment" (p. 33).

A qualitative study by McDonald (1999) used the career choice framework proposed by social cognitive career theorists (Brown & Lent, 1996) to examine issues related to career self-efficacy (e.g., work goals, barriers to employment, perceived skills and abilities). Interviews were conducted with seven adults who had various physical, sensory and psychiatric disabilities and were participating in a rehabilitation program designed to enhance work capabilities. Participants generally reported increases in personal and career self-efficacy as a result of involvement in the program.

Donohue and Patton (1998) evaluated a career guidance program for a group of long-term unemployed people ($N = 58$), which aimed to enhance self and opportunity awareness, decision-making and transition skills. Participants were surveyed prior to and immediately after the intervention, with interviews conducted to augment these data. Results affirmed

support for the career guidance program, with positive outcomes including expanded work options, increased knowledge of self, verification of interests and abilities, and improved self-confidence. The authors stressed the need for an expansion of career counselling services to assist this group to develop self-awareness, self-confidence and a more realistic appraisal of career options.

In another program evaluation, Patton (2000) reported on the discrepancy between the need for quality career counselling and the paucity of suitable training for career practitioners. This author evaluated outcomes for a Master's level career guidance education program at an Australian university ($N = 137$), and asserted that within the context of ongoing changes in the workforce, career guidance personnel must take on new roles such as information management, group counselling, placement, follow-up, and networking.

Goble (1998) examined the predictive validity of a measure of post-secondary training success that was being used widely in vocational counselling for the selection of students for higher education training courses, and for personnel selection. First year engineering students ($N = 213$) completed four subtests from the Differential Aptitude Test battery (de Lemos, 1989). The major predictor of performance in technical education and training programs was found to be general ability rather than specific abilities (Verbal Reasoning, Numerical Ability, Space Relations and Mechanical Reasoning). The minor contributions made by the specific ability measures cast doubt on the supposed differential nature of the test battery.

Finally, two studies are reported that investigated career development training within business organizations. Humphries and Carr (1999) surveyed the methods and extent to which 16 large New Zealand companies conducted formal career development programs. The survey results generally reflected positive responses to the practices and value of the career development systems. The main methods used were in-house training and external seminars, although an absence of senior career advisors was noted. The benefits identified were related

to the skilling of employees for future job requirements so that the organization was equipped with a bank of talent on which to draw. Secondly, Hesketh (1996) reported on two Australian studies ($N = 78$ & 114) undertaken in a large chemical processing company that had a strong agenda for training. Around one third of participants in the first study were identified as status quo-oriented individuals (i.e., not considering training alternatives). These were longer-serving, older employees with lower qualifications. In the second study, a large majority of respondents placed highest priority on the status quo (i.e., they ranked doing a good job higher than training, even when training was presented in a "threat of layoff" context). Hesketh called for more research in this area to gain a better understanding of individual as well as contextual factors impacting upon responses to the need for change within organizations. She also highlighted the passive role that older and more established employees have been accustomed to, suggesting that future research will be required to find ways to encourage continuous and effortful career planning within organizations.

Conclusion

Career development research in Australia and New Zealand is diverse and thriving. Yet, contrary to Stead and Watson's (1998) contention that USA developed theories of career development are not universally applicable, Australian and New Zealand researchers have not been concerned that such theories, constructs and tools are applied uncritically to people in this part of the world. Undoubtedly, this critique is yet to be adequately tested and future work will need to focus purposefully on the models and assessment methods currently being utilised.

Career decision-making research needs also to be expanded. In particular, the key decision-making points for adolescents in these two countries need to inform the context for

career choice behaviours. Findings in this area also indicate that students' unrealistic career aspirations warrant attention.

An appraisal of the gender studies revealed common findings. Boys were drawn to mathematics and science more than girls, and girls were found to demonstrate a more flexible approach to career planning than boys. The prevalence of gender stereotyping of careers amongst children also persists. Adult males were less involved in home duties than women, and the dilemma for women over the stressors associated with combining work and family roles was most salient. The studies of cultural differences, while in short supply, have provided some important information about the difficulties faced by minority groups such as Maoris in New Zealand, Aboriginal females and people from non-English-speaking backgrounds in Australia. These groups generally appeared more disadvantaged as to employment opportunities.

There are imperatives for proficient career education programs to be designed, tested, and implemented. The school-to-work transition process is characterised by complexity and multiple pathways that can give rise to confusion, indecision and, in some instances, apathy. Strong indications have emerged accentuating the need for coherence of career service delivery across all States of Australia. Career development research is confronted with the crucial task of deciding exactly what types of programs work, when they should be delivered and for how long. In other words what specific career education initiatives achieve the goal of enhancing the school-to-work process of all students. The evaluation of career development training for adults also requires more scrutiny in order to improve the situation for groups such as the unemployed and those with disabilities. Workplace based evaluations are in their infancy and more field examinations of the efficacy of programs within local contexts are required. Indeed, an expansion of career counselling services and adequate training for its practitioners within Australia and New Zealand are an imperative.

The present review has revealed additional implications for career practitioners beyond this fundamental need for the upgrading of their training and services. Foremost is an appeal for practitioners to adopt a collegial approach with researchers. This would assist the extension of theoretical knowledge by giving it contextual grounding, and lead to better theoretically guided practice. Career development practitioners may also benefit from staying abreast of the latest research findings to guide them when revising outmoded procedures. For example, gender differences found in the studies reviewed here may inspire the development of separate programs tailored to the disparate needs of male and female students. While this theory/practice model has implications for career development practitioners, it also implies that career development researchers need to supplement their work by going beyond the confines of their university precincts with university convenience samples and conduct research in the field.

Finally, there is a need to acknowledge that many highly informative articles did not meet the criteria for inclusion in this review. These were generally case studies or reports of a descriptive nature that nonetheless made enlightened contributions to the field. Readers are directed to the "Special Feature" and "Case Studies" sections of recent issues of the *Australian Journal of Career Development* for samples of this literature.

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